

REMARKS

Claims 15-36 are pending in the present application. Claims 15, 25, 35 and 36 were amended in this response. No new matter was introduced as a result of the amendments. Support for the amendments may be found, for example, in paragraphs [006] and [015]. Entry of the amendments and favorable reconsideration is respectfully requested.

Claims 15-36 were rejected under 35 U.S.C. §102(e) as being anticipated by Lapstun et al. (US Pub. 2005/0204265). Applicant respectfully traverses this rejection.

Applicant wishes to request an Examiner Interview as of right to discuss the present amendments and to discuss the alleged teachings of Lapstun, should the present rejection be maintained. While the Applicant has reviewed the Lapstun application, the precise positions of the Office Action is difficult to understand, given the broad citation to numerous paragraphs in the rejection. For example, for the feature of “selecting the position codes,” over 15 paragraphs of text were cited in Lapstun, without further explanation. Also, as is argued in more detail below, three paragraphs ([0120-22]) were cited for the feature that “the position codes represent rational numbers” - Applicant cannot find such a disclosure in Lapstun.

Nevertheless, Applicant has amended the present claims to more clearly recite the patentable features. Regarding Lapstun, the document fails to teach or suggest the features of “associating position codes with the data elements in a pre-determined sequence, wherein the position codes are represented as rational numbers; and selecting the position codes such that, if lengths of the position codes are unlimited, any desired number of new position codes may be allocated as positions for new data elements that are to be inserted between positions of two data elements in order to code positions of the new data elements within the data structure without changing the associated position codes” as recited in claim 15, and similarly recited in claims 25, 35 and 36. Under the recited configuration, the positions of newly added data elements can be coded in a simple and efficient manner, where the position coding is robust with respect to data loss since position codes are retained, and new positions can be coded between existing positions without elements and their position codes having to be transmitted again.

Regarding Lapsun, the document fails to teach or suggest that the position codes are rational numbers. As is well known in the art, and supported by the present specification, (see [0014]) rational numbers are numbers that are expressed as a ratio of two integers (e.g., 1/8, 1/4,

3/8, etc.). By using rational numbers, as presently claimed, for the position codes, multiple values may be found for the position codes of new data elements which lie between the values of two position codes. Accordingly, it becomes possible to generate new position codes for new data elements in the data structure without the existing position codes having to be changed. Associated position codes, therefore may be retained and any desired number of new data elements inserted at any desired position.

Lapsun fails to provide such a teaching, and further teaches away from using rational numbers. The codewords in Lapsun appear to be based solely on integers based off of cyclic processing ([0023]). Lapsun discloses that, in order to provide error processing, the Hamming distance must first be determined ([0083]), where the distance between two strings of equal length is the number of positions for which the corresponding symbols are different ([0083-84], [0100-101]). In other words, Lapsun measures the minimum number of substitutions required to change one into the other, or the number of errors that transformed one string into the other. FIGs. 1 and 2 provide disclosures of codewords for cyclic position codes that are to be repeated a number of times ([0102]). Each case provides that the position code is based on an integer value, and appears to provide no teaching that allows for position codes to be represented as rational numbers.

Furthermore, Lapsun fails to teach or suggest the features of “selecting the position codes such that, if lengths of the position codes are unlimited, any desired number of new position codes may be allocated as positions for new data elements that are to be inserted between positions of two data elements in order to code positions of the new data elements within the data structure without changing the associated position codes.” Lapsun discloses that data and parity coordinates may be distinguished by comparing systematic codes (i.e., if each codeword contains, without modification, its corresponding data block at a fixed location - see [0088]). When puncturing is done on linear code, Lapsun teaches that the position codes must be modified, which destroys the ability to detect errors ([0089]). As a proposed solution to this problem, Lapsun relies on cyclic position codes, which represent independent cyclic shifts for every codeword ([0090-92]: “if the code is designed so that all n codewords belong to the same and only cycle, then the window will yield n different codewords at n successive positions”).

By cycling through position codes, Lapsun appears to be totally dependent on changing associated position codes to correct errors, since the position codes must contain different shift

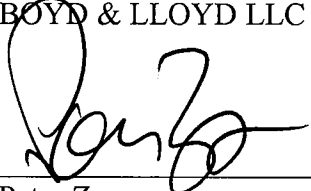
values for encoding/decoding. In the "Difference Coding using a Cyclic Position Code" example ([0118], see FIGs. 3 and 4), Lapsun teaches that a codeword is repeated with markers ([0122]) to determine errors within a specific window. Turning the examiner's attention to FIG. 4, the disclosure states that "[e]ach 7-bit column within each window can be interpreted as a codeword of the 7-bit code, in turn yielding a shift value and hence a relative position according to Table 1. Since a sampled 7-bit codeword may contain errors, it is first decoded to yield a valid codeword, e.g. using a maximum-likelihood decoder as described earlier (i.e. either directly or algebraically)" ([0122]). Accordingly, Lapsun teaches that the associated position codes must be changed in order to properly account for errors. For at least these reasons, Applicant submits the rejection is improper and should be withdrawn.

In light of the present amendments and arguments, Applicant respectfully submit that claims 15-36 are allowable. Applicants respectfully submit that the patent application is in condition for allowance and request a Notice of Allowance be issued. The Commissioner is authorized to charge and credit Deposit Account No. 02-1818 for any additional fees associated with the submission of this Response. Please reference docket number 112740-1039.

Respectfully submitted,

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Dated: September 4, 2007